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IS 8633 (1977): Technical requirements for location of boilers installations and boiler houses [MED 1: Boilers and Pressure Vessels]

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UDC 621·1877+621·182 (Second Reprint APRIL 1984) IS : 8633 - 1977

Indian Standard

TECHNICAL REQUIREMENTS FOR LOCATION OF BOILER INSTALLATIONS AND BOILER HOUSES

1. Scope — Covers recommendations for the laying out and projecting of boiler houses, both for power and process purposes, designed for a maximum pressure of main steam (gauge) exceeding 100 kPa with the exception of boilers whose total volume does not exceed 22·75 litres. The standard is valid for independently fired superheaters. The standard also covers such constructional details as may be relevant to boiler installations and boiler houses.

1.1 The standard does not cover evaporators and hot water heat exchangers forming part of the industrial furnaces.

2. Terminology — The definitions given in IS : 8595-1977 'Terminology for parametres of stationary steam boilers' and the following are applicable.

2.1 *Clearance — The free space between buildings, enclosed by outside walls of the building.*

If a portion of the building extends by more than a metre, the clearance is calculated between the extensions.

2.2 *Operating Platform* — An open grilled or chequered plate framework made of steel with two-bar hand rails allowing access to various parts of the boilers and accessories for maintenance and repairs.

2.3 *Gallery* — A narrow platform made of steel connected to structural steel, used only as walk-way for the supervision of the boiler operation. It also enables movement from one platform to the other.

3. Technical Requirements

3.1 *Location*

3.1.1 For siting the boilers it is necessary to get the concurrence of concerned governmental agencies.

3.1.2 Boilers houses with boilers of water volume above 1 000 litres and with maximum pressure of main steam (gauge) above 100 kPa or same boilers of outdoor construction shall be erected away from the nearby objects (such as buildings, covered or uncovered storing places inside the industrial premises) at such a distance that the clearances are safe enough from the point of view of fire, health and life hazards and in conformity with the existing rules and regulations as may be applicable.

3.1.2.1 The distance of the boiler houses from nearby objects should also be decided in line with hygienic requirements, which determine conditions for protection of the surroundings.

3.1.3 Steam boilers with water volume more than 500 litres and up to 1 000 litres and with maximum pressure of main steam (gauge) up to and including 700 kPa, may be located in a building along with other workshops provided nobody is allowed to be present at a level directly above the boilers. It is further recommended that people should not congregate in the vicinity. Such boilers may also be located below ground level provided they have gas-tight R.C.C.

3.1.4 Boilers with water volume up to 500 litres and with maximum pressure of main steam (gauge) up to and including 500 kPa may be located in working areas even if there are areas above them in which people crowd or work.

3.1.5 In the case of outdoor and semi-outdoor boiler installations precautions shall be taken to prevent absorption of moisture into the refractory, insulation, and the insulation of electrical motors, and to guard against freezing of pipelines and fittings. Water level indicators, measuring and regulating instruments, induction motors as well as feed pumps shall be protected against atmospheric conditions by proper covering. These covers may be fixed on to the structural steel itself.

3.1.6 The instrument and control equipment shall be located in a dust free cabin in independent areas which are properly ventilated and preferably air-conditioned. It is however permissible to locate them directly on the boiler house operating-floor.

3.1.7 Auxiliary equipment and fittings of boilers may be located at any of the platforms above the ground level if the static structure has been designed for the dead and live loads of the equipment.

Boilers Sectional Committee, EDC 40; Boiler House Layout Subcommittee, EDC 40 : 11 [Ref : Doc : EDC 40 (2252)]

Adopted 21 November 1977

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3.11.2 If windows are provided at the boiler roof it is permissible to consider them also as sources of illumination and accordingly to select the location and design of lighting fittings.

3.11.3 Artificial lighting shall be so designed and provided that it does not produce glare and does not create reflection on the control instruments (manometers, water level indicators, etc) and that it ensures safe and easy operation and attendance of the equipments and instruments.

3.11.4 The following areas shall be served by emergency lighting fed from an independent source of power supply other than station bus:

a) The front wall as well as other areas of attendance of the boilers,
b) Pressure gauges and water level indicators,
c) Measuring and control panel,
d) The area accommodating feed water and other pumps,
e) Areas accommodating mills,
f) Blowdown control station, and
g) Central control room.

3.11.5 It is not necessary to have emergency lighting for all the equipment indicated above provided the plan area of the boiler house is only up to 100 m^2. Here it is possible to use hand electrical lamps or torch lights which the operator should always keep with him in fit condition.

3.11.6 For illumination with hand lamps and for electrical appliances voltages of up to a maximum of 24 volts are recommended to be used.

3.12 *Ventilation* — Provision for ventilation shall be made in accordance with the requirements of The Factories Act, 1948.

3.13 *Noise* — For the total intensity of noise in the boiler house and the areas connected with it as also for their construction arrangement from the point of view of noise, corresponding national standards are recommended to be followed.

3.14 *General*

3.14.1 The walls, covers and cable bridges and other requirements in the boiler houses with boilers burning solid fuels, shall be so designed that coal dust may not settle on them.

3.14.2 It is not recommended to use the boiler house, except the boiler houses covered under **3.1.3** and **3.1.4**, as workshops or storeyard. In the boiler house only the most essential equipment shall be kept which is used for the maintenance of the boiler and its auxiliaries.

3.14.3 If the boilers are operated and controlled remotely from a control room, the air-conditioning, lighting, ventilation and noise shall be provided in accordance with **3.1.6**, **3.11**, **3.12** and **3.13** respectively.

3.14.4 In case cooling ponds, slurry sumps for ash pumps, etc, are in the near vicinity of the boiler house, they should be provided with handrails or alternately covered with open grills with not more than 80 mm square holes.

3.14.5 All service pipelines, such as those carrying water, steam, oil or compressed air should be so run that they will not be a hinderance for free movement of the operating personnel. The pipelines shall carry proper colour identification.

EXPLANATORY NOTE

The necessity for proper location of boiler installations and boiler houses is well understood in view of the inherent dangers involved to life and property. It is necessary that the layout of the boiler should be proper with provision for suitable exits, doors, stairways and access openings. Apart from the safety aspect for proper location of boiler, economic supply of water, fuel, utilization of steam and disposal of ash are also to be taken into account.

The quantities in this standard have been expressed in International System (SI) units. However, for the sake of convenience the relative metric units and the corresponding conversion factors are given below for general guidance:

1 kgf/cm^2 = 98·066 5 kPa (kilo pascal) = 0·098 066 5 MPa (mega pascal)
= 0·980 66 5 bar
1 MPa = 10·196 1 kgf/cm^2

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IS 8633 : 1977 TECHNICAL REQUIREMENTS FOR LOCATION OF BOILER INSTALLATIONS AND BOILER HOUSES

(*Page* 3, *clause* 3.7.3) — Substitute '100' *for* '60'.

(ME 01)

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